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研究论文

烟叶氨气补偿点的品种间差异及其与氮素代谢的关系研究

段旺军[1,3]， 杨铁钊[2*]， 刘化冰[2]， 张小全[2]，戴 亚[3]， 李东亮[3]
1 河南农业大学博士后科研流动站，河南郑州450002；2河南农业大学烟草学院，河南郑州 450002；

3川渝中烟工业公司技术研发中心，四川成都610066

Differences in NH_3 compensation point among tobacco (*Nicotiana Tabacum* L.) cultivars and its relationship with N metabolization

DUAN Wang-jun[1,3], YANG Tie-zhao[2*], LIU Hua-bing[2], ZHANG Xiao-quan[2], DAI Ya[3], LI Dong-liang[3*]
1 Station of Postdocter, Henan Agricultural University, Zhengzhou 450002, China; 2 College of Tobacco Science, Henan Agricultural University, Zhengzhou 450002, China; 3 Research and Development Center, China Tobacco Chuanyu Industrial Corporation, Chengdu ,Sichuan610066, China

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摘要 为了研究不同成熟特性的烤烟品种叶片氨气补偿点及其差异，利用质外体提取方法对3个烤烟品种NC89、K326和中烟90的叶片质外体铵浓度和pH值进行了测定，并计算不同品种叶片的氨气补偿点(25℃)；同时探讨了氨气补偿点与氮素代谢的关系。结果表明，叶片氨气补偿点随着成熟衰老而上升；烟草叶片成熟衰老期氨气补偿点与谷氨酰胺合成酶活性关系密切。衰老速度快、叶片氮素状况（总氮和可溶性蛋白）低的品种谷氨酰胺合成酶活性下降幅度大，氨气补偿点升幅大，绝对值也高。因此，衰老速度快、叶片氮素状况低的品种在叶片衰老期具有更大的氨挥发潜力。品种间氨气补偿点的差异与它们的氮素代谢特性有关。

关键词： font-family: 宋体 mso-ansi-language: EN-US mso-fareast-language: ZH-CN mso-bidi-language: AR-SA mso-ascii-font-family: 'Times New Roman' 烟草')" href="#">mso-bidi-font-family: 'Times New Roman'">烟草 氨气补偿点 氮素代谢 谷氨酰胺合成酶

Abstract： To investigate NH_3 compensation point (χ_s) and its differences in leaves of three flue-cured tobacco genotypes and the related N metabolization, foliar apoplastic NH_4^+ concentration and pH were measured by apoplast extraction technique, the χ_s (25℃) was calculated on the basis of measurements, and the activities of related enzymes and nitrogen parameters were also assayed. In the leaves of the three cultivars, an increase in χ_s was observed as the onset of senescence. Compared with the leaves of slow-senescing cultivar, the leaves of the rapid-senescing tobacco cultivar with lower N status had a stronger decrease in glutamine synthetase activity (GS, EC 6.3.1.2) and a more substantial increase in χ_s. These results indicate that the rapid-senescing cultivar may have a high potential for NH_3 emission from senescing leaves into the atmosphere, and the difference in χ_s values is related with the N metabolism of the cultivars.

Keywords： tobacoo (*Nicotiana tabacum* L)')" href="#"> tobacoo (*Nicotiana tabacum* L) NH_3 compensation point N metabolization glutamine synthetase

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